Littoral Combat/Power Projection Future Naval Capability

Expeditionary Logistics Investment Component

Initiation

ONR - Naval Organization Responsible for Science & Technology (S&T) Developments

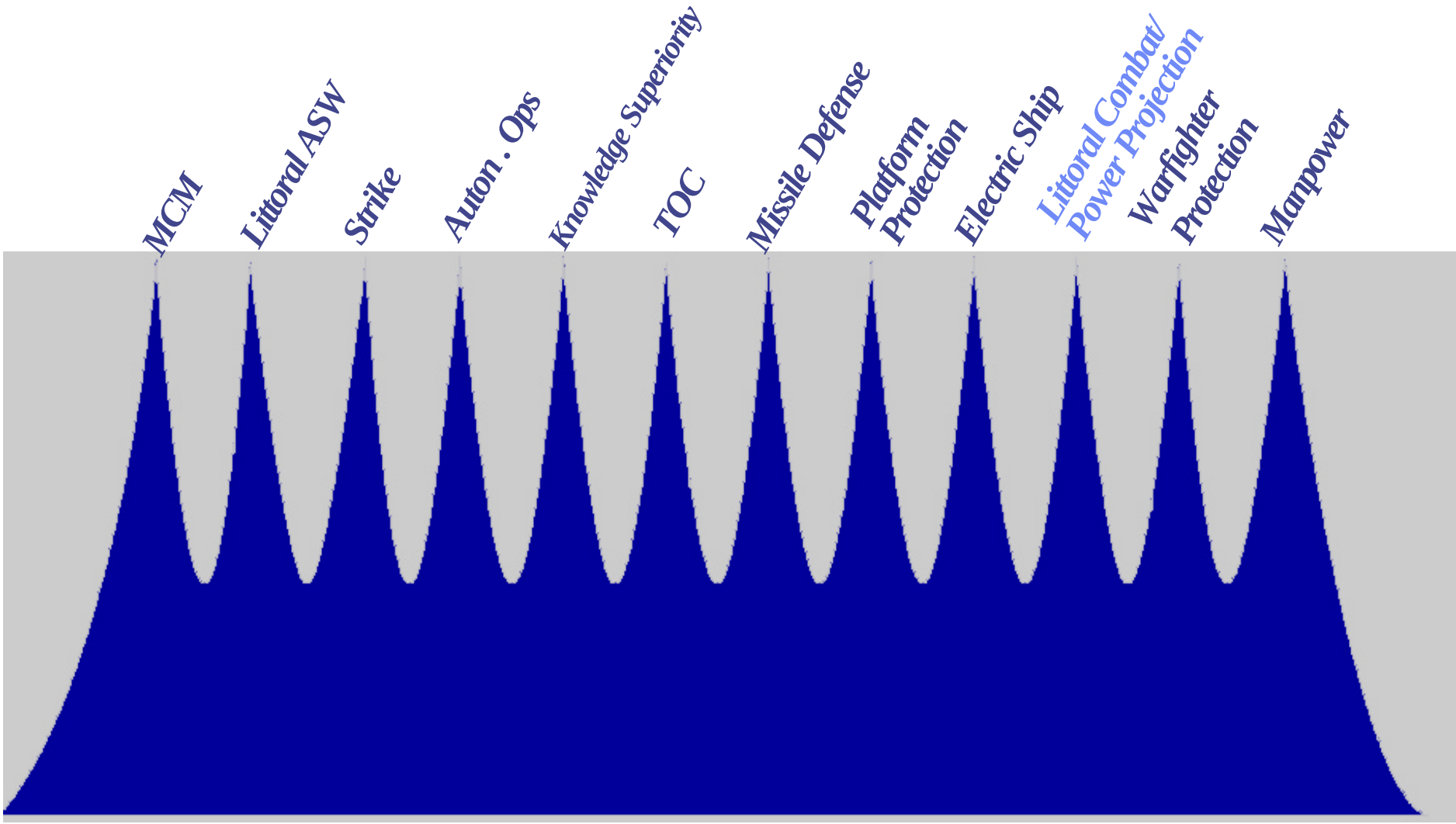
- **Provides Technology Options to Naval Requirements**
- **ONR has been plagued by low transitioning of its products**
- **FNCs were created to better focus ONR's S&T developments for transition**

Rationale

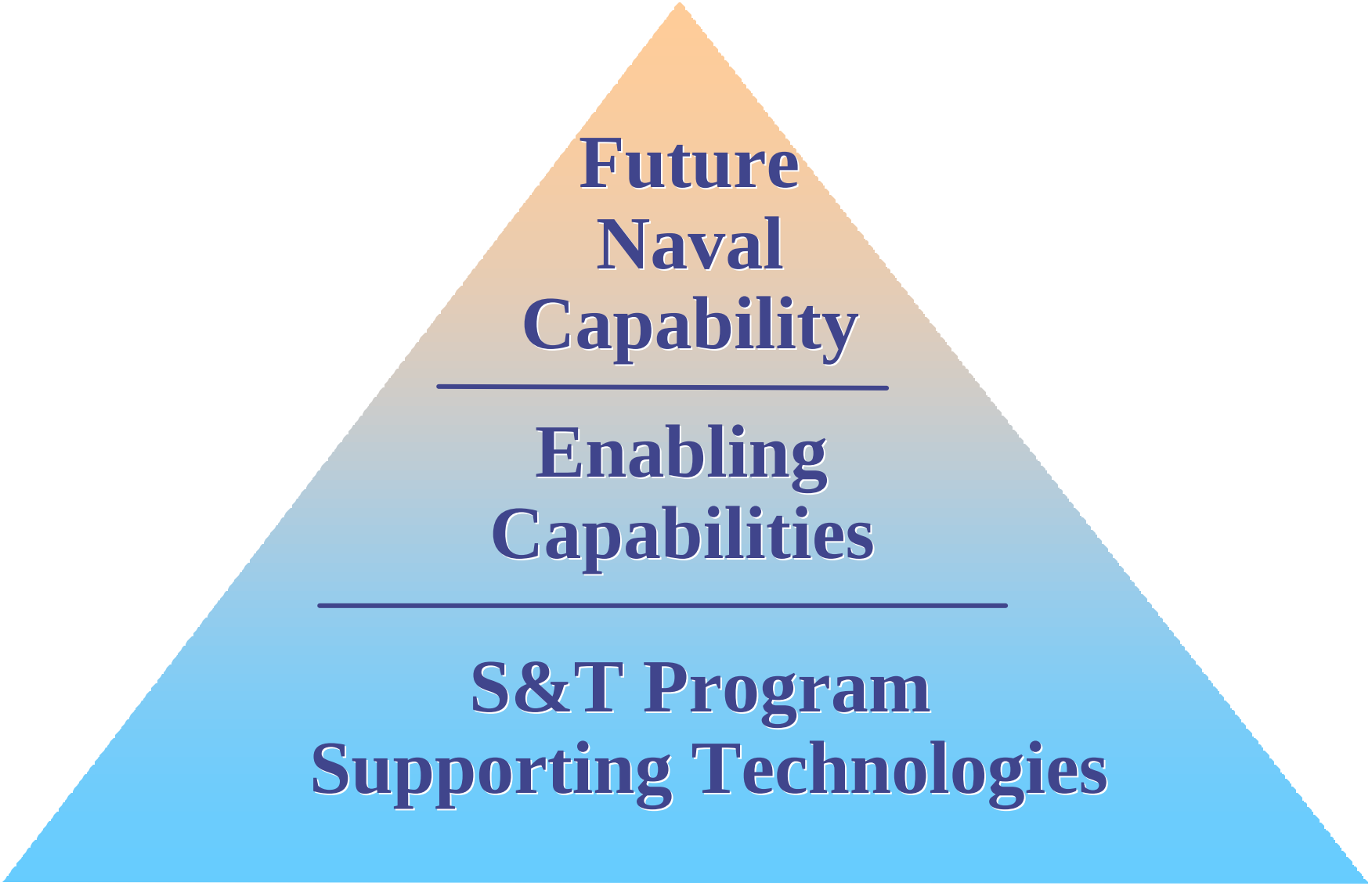
Future Naval Capability:

- S&T response to a DoN top priority capability that:
  - –Provides significant technology options for the DoN capability
  - –Has a significant budget
  - –Has definite milestones & objectives
  - –Has concrete deliverables and a finite end state
  - –Executes well defined demonstrations
  - –Culminates in firm transitions

Established 12 FNCs



The FNC Taxonomy



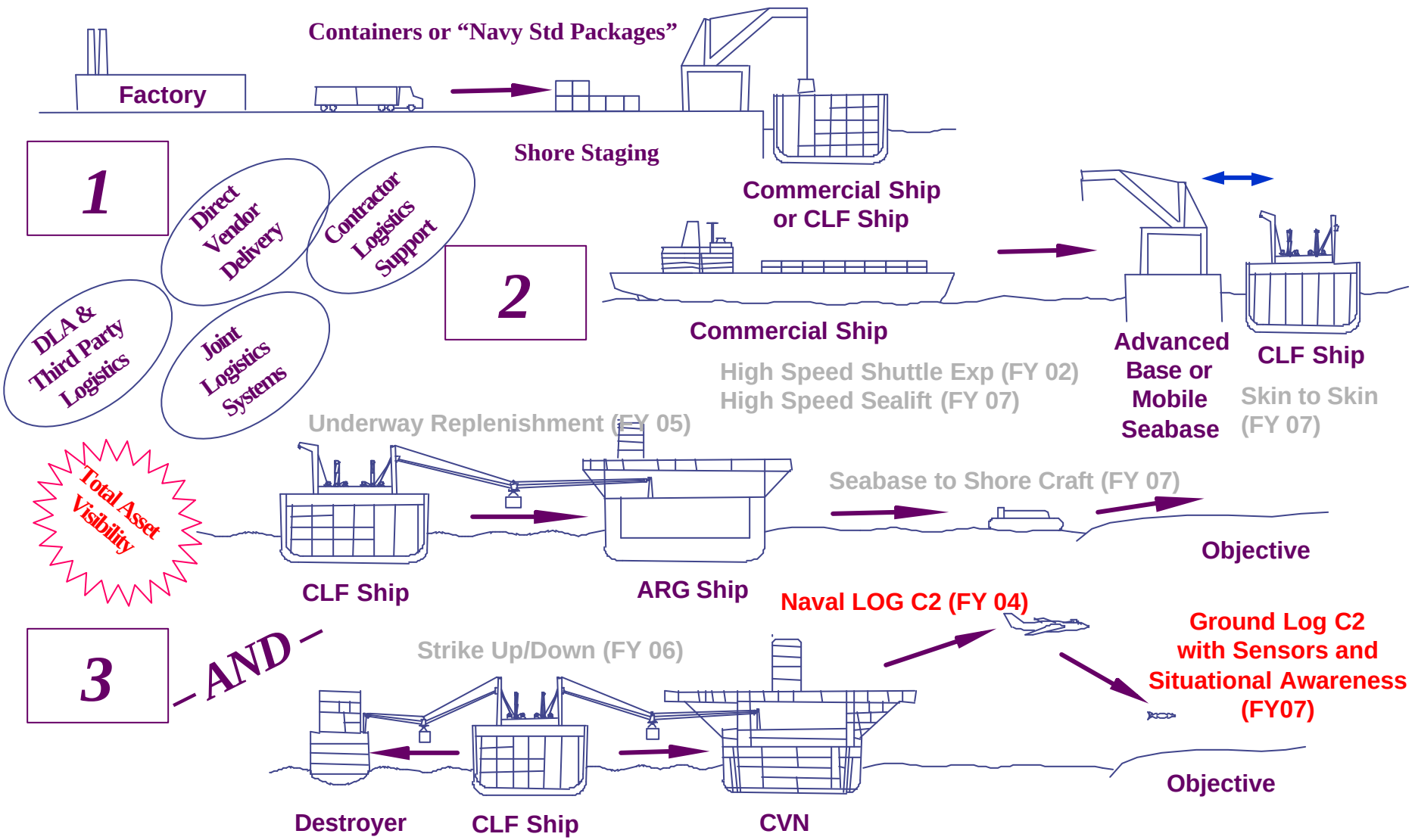
Expeditionary Logistics

ENABLING CAPABILITIES
(Priority Order)

Distribution: Deploy from and reconstitute to the sea base, and supply/resupply the seabase and ashore units.

Logistics Command and Control: Maintain situational awareness of the the Naval landing force and afloat units, utilizing sensors, feedback, and decision support tools.

Operational Logistics
A "System of Systems" Approach



LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG DISTRIBUTION THRUST
SHIPBOARD INTERNAL CARGO MOVEMENT PROGRAM

OBJECTIVE :

- Cargo strike up&down of 6,000 lb (min) or 12,000 lb (objective) in sea state 5
- Cargo rates of 414 pallets/hr
- Workload reduction up to 75%
- Selective offload
- Material available for issue within 4 hours
- Reductions in weight and power consumption
- Improved stowage densities and packaging

PAYOFF:

- Potential Reduced Manning
- Increased Aircraft Sortie Rate
- Reduced CONREP Time
- Reduced Time Off-station for Combat Ships

APPROACH:

- BAA published in CBD in July 01
- Multiple awards in multiple technology interest areas
- Approximately $24M investment over 5years

TECHNOLOGY INTEREST AREAS:

- Load movement and handling
- Cargo stowage
- Stowage density/selected offload

SCHEDULE:

TASKS	FY01	FY02	FY03	FY04	FY05	FY06
INITIAL BAA AND DOWNSELECT	△	△				
INITIAL TECHNOLOGY DEVELOPMENT		△		△		
DOWNSELECT				△		
TECHNOLOGY MATURATION				△	△	
TECHNOLOGY INTEGRATION AND TRANSITION				△		△

TRANSITION TARGETS:

- PEO EXW
- PEO CARRIERS

LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG DISTRIBUTION THRUST
UNDERWAY REPLENISHMENT PROGRAM

OBJECTIVE :

- Increase transfer rate (speed and/or payload) during connected replenishment to decrease UNREP time 50%
- Technology approach that can expand to sea state 5
- Extend ship separation distance
- Support manning objectives of future naval platforms

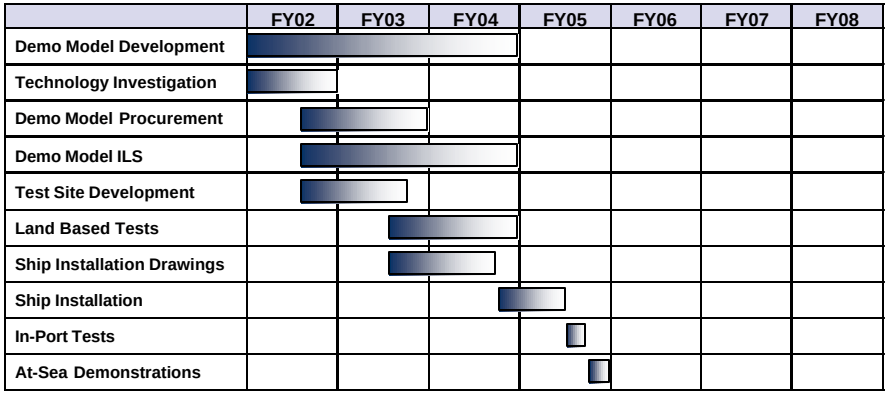
APPROACH:

- Multiple awards in multiple technology interest areas
- Approximately $24M investment over 4 years

TECHNOLOGY INTEREST AREAS:

- Tensioned ropeway / advanced materials
- Total load control / relative motion compensation / transfer motion control
- Unrep station-keeping / ship positioning

SCHEDULE:



TRANSITION TARGET:

- PEO EXW, backfit to T-AKE

LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG DISTRIBUTION THRUST
SKIN TO SKIN MATERIAL TRANSFER PROGRAM

OBJECTIVE:

- Ship to Ship Transfer of 53,000 lb ISO containers in sea state 5
- Transfer the same amount of cargo in half the time
- Allow alongside, skin to skin material transfer
- Connect varied size ships and surface platforms
- Adaptations to allow alongside refueling

PAYOFF:

- Faster transfer of heavier loads
- Alternative to underway replenishment
- Greater fleet flexibility in re-supply

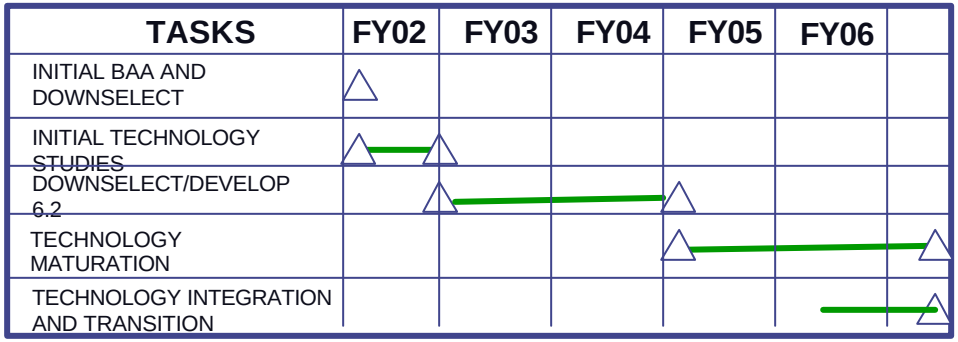
APPROACH:

- BAA published in CBD in July 01
- Multiple low-level study awards in FY02, followed by development in feasible technology areas
- Approximately $17M investment over 6 years, emphasizing 6.2 funds

TECHNOLOGY INTEREST AREAS:

- Alternative Cranes
- Improved Fendering
- Ship To Ship Securing
- Fuel Transfer Adaptations

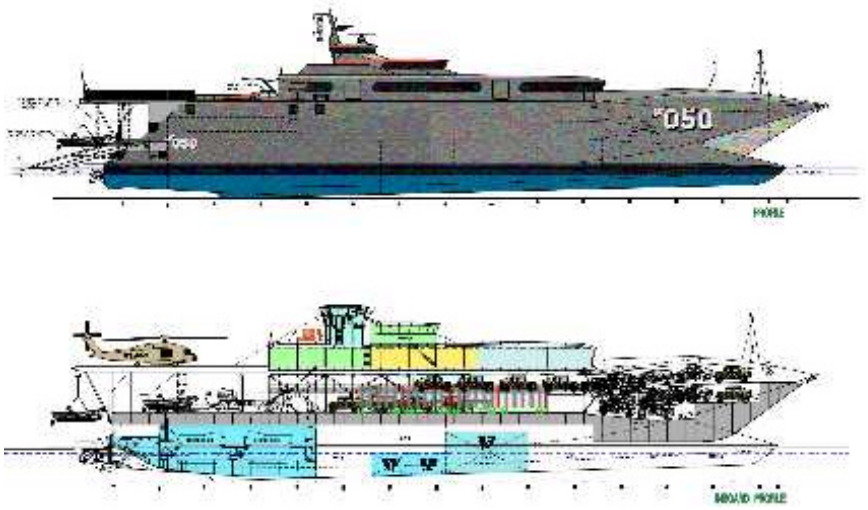
SCHEDULE:



TRANSITION TARGETS:

- PEO EXW
- PEO CARRIERS
- DD21

LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG DISTRIBUTION THRUST
HIGH SPEED SHUTTLE / SEALIFT PROGRAM



OBJECTIVE :

- High speed resupply of the seabase from the intermediate support base
- Robust structures for reliable open ocean high speed operations
- Cargo transfer capability (RO/RO & LO/LO) in the open ocean environment
- Maximize crew and passenger performance during / after high speed open ocean transit

PAYOFF:

- Rapid tailored resupply and sustainment via seabase
- Increase tooth to tail ratio for employed Marine units by facilitating just-in-time logistics

APPROACH:

- Exploit FY02 *joint venture* experimentation program
  - •Instrument vessel for performance, motions, and structural loads data
  - •Support collection of military utility data to mature CONOPS
- Develop technology investment roadmap and await MNS / ORD)

NOTIONAL TECHNOLOGY INTEREST AREAS:

- Robust lightweight structures
- Cargo transfer in open ocean environment
- Human performance features for high speed open ocean operations

SCHEDULE:

TASKS	FY01	FY02	FY03	FY04	FY05	FY06	FY07
INSTURMENT LEASED HSV							
SEAKEEPING & LOADS DATA COLLECTION							
MILITARY UTILITY ASSESSMENT							
REQUIREMENT DEV. (OPNAV / NWDC / MCCDC)							
ENABLING TECHNOLOGY DEVELOPMENT							

TRANSITION TARGETS:

- PEO EXW

LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG DISTRIBUTION THRUST
SEABASE TO SHORE SURFACE CRAFT PROGRAM

OBJECTIVE:

- Speed/Range – Notional 40 knot/40 NM offshore
- Sea State 3 operability required, Sea State 5 desired
- Cargo – up to 70 short tons per trip

PAYOFF:

- Support seabased operations, including indefinite sustainment, by providing 1) transfer of cargo and personnel to shore, complementing air transport capabilities, and 2) transfer of goods between vessels of the seabase
- Tactically deploy combat ready MPF MAGTF units to reinforce an amphibious MAGTF
- Support a general (administrative) offload of the MPF(F) equipment to reinforce an assault force ashore

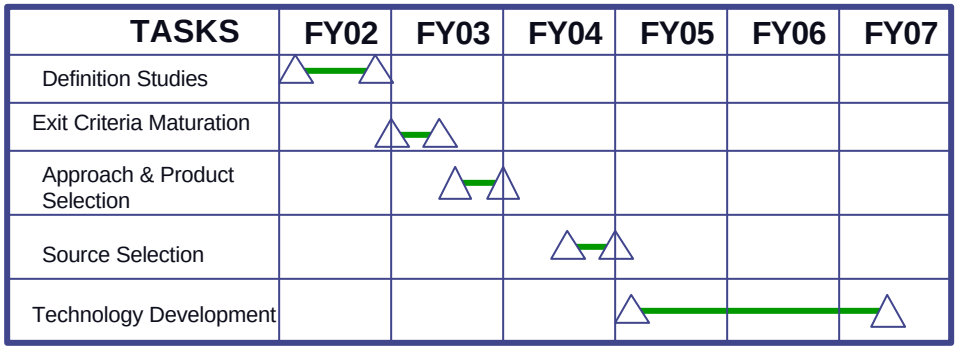
APPROACH:

- 6.2 Funds will be utilized in FY02/03 to produce studies for better product definition
- By the end of FY03, a defined set of products, supporting technologies, and achievable technology readiness levels will be determined
- Competitive source selections will begin in FY04 with product deliveries projected in FY07
- Approximately $11.9M investment over 6 years

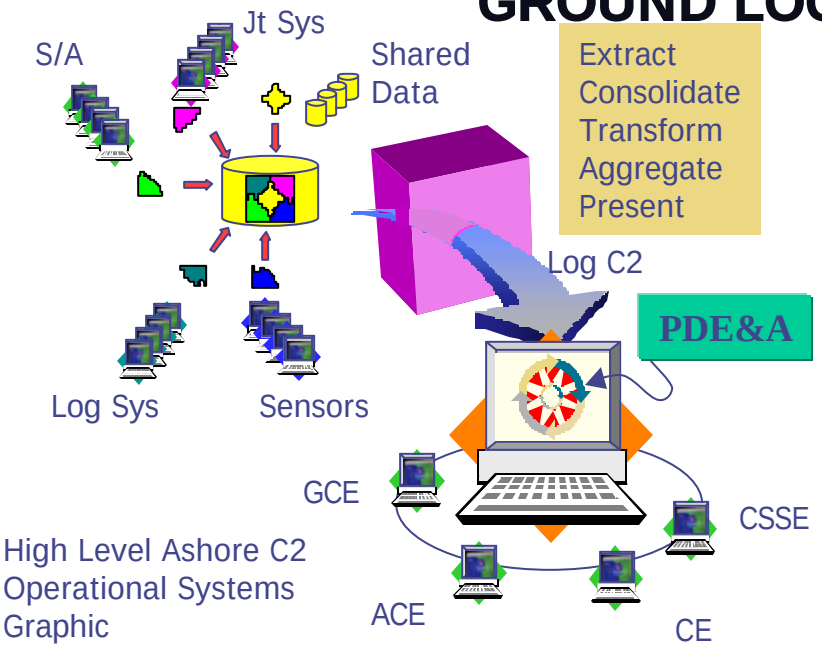
NOTIONAL TECHNOLOGY INTEREST AREAS:

- Connector Systems
- Propulsion Systems
- Cargo Transfer Systems
- Cargo Stabilization Systems
- Drive Mechanisms
- Advanced Hull Forms

SCHEDULE:



LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG COMMAND AND CONTROL THRUST
GROUND LOGISTICS C2 PROGRAM



OBJECTIVE :

- Enhanced capabilities for multi-sensor data integration
- Increased logistics (friendly) situational awareness
- Increased asset visibility
- Near real-time readiness monitoring of critically tracked items (CTI)
- Condition based maintenance
- Advanced decision support tools to increase CSS efficiency and MAGTF effectiveness

PAYOFF:

- Enhanced MAGTF Readiness
- Enhanced MAGTF Effectiveness
- Logistics as an enabler VS limiter

APPROACH:

- Employ maturing software capabilities to the logistics area, using incremental risk based prototyping
- Invest in tactical logistics & decision support tools such as a Sustainment Calculator, Task Org Builder, COA Simulator, Risk Analysis, Event Matrices, Virtual Sand Table, Forecasting Models
- Invest in logistics battlefield sensor architecture
- Approximately $20M investment over 4 years

TECHNOLOGY INTEREST AREAS:

- Distributed Computing
- Optimization/Gaming Theory
- Advanced Algorithms and Logic

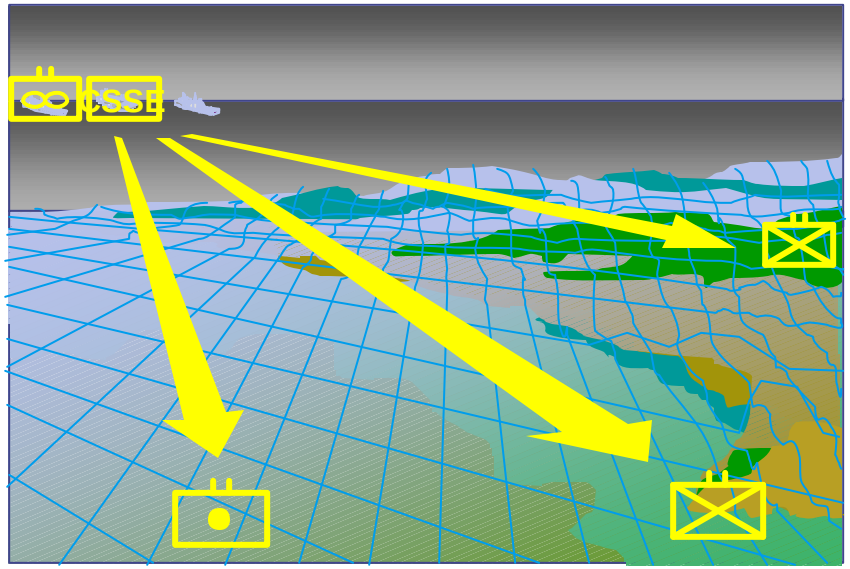
SCHEDULE:

TASKS	FY01	FY02	FY03	FY04
INITIAL BAA AND DOWNSELECT				
INITIAL TECHNOLOGY DEVELOPMENT				
DOWNSELECT				
TECHNOLOGY MATURATION				
TECHNOLOGY INTEGRATION AND TRANSITION				

TRANSITION TARGET:

- MCSC PM-IS

LITTORAL COMBAT/POWER PROJECTION FNC
EXLOG COMMAND AND CONTROL THRUST
NAVAL LOGISTICS C2 PROGRAM



OBJECTIVE :

- Integrated logistics for the JTF/ATF/MAGTF
- Increased logistics (friendly) situational awareness
- Increased asset visibility
- Near real-time readiness monitoring of critically tracked items (CTI)
- Advanced decision support tools to increase afloat logistics efficiency and effectiveness

PAYOFF:

- Fully implement the Naval warfighting concepts
- Potential to reduce infrastructure ashore
- Potential to reconfigure afloat footprint
- Increased responsiveness

APPROACH:

- Employ maturing software capabilities to the logistics area, using incremental risk based prototyping
- Invest in operational logistics & decision support tools such as a Sustainment Calculator, Task Org Builder, COA Simulator, Risk Analysis, Event Matrices, Virtual Sand Table, Forecasting Models
- Approximately $14M investment over 4 years

TECHNOLOGY INTEREST AREAS:

- Advanced scheduling/synchronization
- Non-linear solution / chaos theory

SCHEDULE:

TASKS	FY04	FY05	FY06	FY07
Program Planning and BAA				
INITIAL TECHNOLOGY DEVELOPMENT				
DOWNSELECT				
TECHNOLOGY MATURATION				
TECHNOLOGY INTEGRATION AND TRANSITION				

TRANSITION TARGET: TBD

Summary

- Jt Vision 2020 “Replace Footprint and Inventory with Speed and Information”
- Naval Community Challenged with Logistics Ownership
- ExLog Preferred Execution Method - the BAA
- S&T Fiscal Stability, but Outcome Tied to the POM in Many Cases

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